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Publication date:
2013

Document Version
Publisher's PDF, also known as Version of record

[Link back to DTU Orbit](#)

Citation (APA):
Kongsted, H., Jonach, B. R., Haugegaard, S., Jorsal, S. E. L., Jensen, T. K., & Nielsen, J. P. (2013). *Gross and histological lesions associated with a new neonatal porcine diarrhoea syndrome (NNPD) in piglets*. Poster session presented at 5th European Symposium of Porcine Health Management (ESPHM 2012), Edinburgh, United Kingdom.

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Gross and histological lesions associated with a new neonatal porcine diarrhoea syndrome (NNPD) in piglets

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Objective: The aim of this study was to evaluate gross and histological lesions in diarrhoeic and non-diarrhoeic piglets from four Danish herds having a 1-2 year history of severe neonatal diarrhoea with an unknown etiological background (based upon traditional diagnostic methods for detection of ETEC, C. perfringens and rotavirus A).

Methods: 51 diarrhoeic and 50 non-diarrhoeic piglets were euthanized at the age of 3-7 days. Necropsies and histological evaluations were performed. One-sided Fisher’s exact tests were used to test differences between diarrhoeic and non-diarrhoeic piglets across and within herds ($\alpha=0.05$).

Results: Are presented in table 1.

Conclusion: Neonatal piglets suffering from NNPD had necropsy and histological lesions which differentiated them from non-diarrhoeic piglets. A poor body condition, dehydration, flaccidity of intestines and intestinal villous atrophy were the most significant findings in the diarrhoeic piglets.

Lesion		Diarrhoeic (%)	Non-diarrhoeic (%)	P-value*
Necropsy	Poor body condition	57	4	< 0.0001 ⁴
	Dehydration	29	2	< 0.0001 ²
	Empty stomach	0	12	1
Small intestines	Flaccidity	73	20	< 0.0001 ³
	Watery contents	57	30	0.01 ²
	Hyperaemia of serosa	6	0	0.2
	Enlargement of lymphnodes	18	16	0.9
	Striping of serosa	2	0	1
	Edema in mesentery	4	4	1
	Dullness/ necrosis of mucosa	8	8	1
	Villous atrophy	63	12	< 0.0001 ³
	Epithelial lesions	20	6	0.04 ¹
	Mucosal necrosis	6	0	0.12
Large intestines	Neutrophil infiltration	33	32	0.5
	Flaccidity	53	6	< 0.0001 ³
	Liquid contents	48	10	< 0.0001 ³
	Edema in mesentery	39	20	0.06
	Enlargement of lymphnodes	4	2	1
	Epithelial lesions	33	11	0.01 ²
	Mucosal necrosis	2	0	0.5

Table 1. Lesions in 51 diarrhoeic and 50 non-diarrhoeic piglets from four herds. *: One-sided Fisher’s exact test across herds. Significant associations were also tested within each herd. The numbering (¹⁻⁴) indicate within how many herds, a significant association was found.